

HA17555 Series

Precision Timer

REJ03D0681-0100

(Previous: ADE-204-064) Rev.1.00

Jun 15, 2005

Description

HA17555 Series are ICs designed for accurate time delays or oscillations. It provides both of trigger terminal and reset terminal in order to enable a wide scope of application including Mono Multi Vibrator and Astable Multi Vibrator, and the number of external components is fewer. Further, it's compatible with NE555 of singnetics.

Features

- Mono multi vibrator can be constructed with one resistor and one capacitor.
- Astable multi vibrator can be constructed with two resistors and one capacitor.
- Delay time can be established widely from several μ seconds to several hours.
- Pulse Duty can be controlled.
- The maximum value of both sink current and source current is 200mA.
- Direct connection of output to TTL is possible.
- Temperature/delay time ratio is 50 ppm/°C (typ).
- Output is normally in the on and off states.

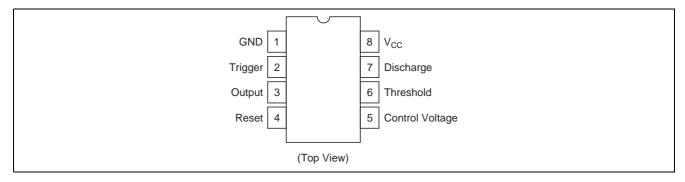
Ordering Information

Application	Type No.	Package Code (Previous Code)
Industrial use	HA17555PS	PRDP0008AF-A (DP-8B)
	HA17555FP	PRSP0008DE-B (FP-8DGV)
Commercial use	HA17555	PRDP0008AF-A (DP-8B)
	HA17555F	PRSP0008DE-B (FP-8DGV)

Applications

- Delay Time Generator (Mono Multi Vibrator)
- Pulse Generator (Astable Multi Vibrator)
- Pulse Width Modulator
- Pulse Location Modulator
- Miss Pulse Detector

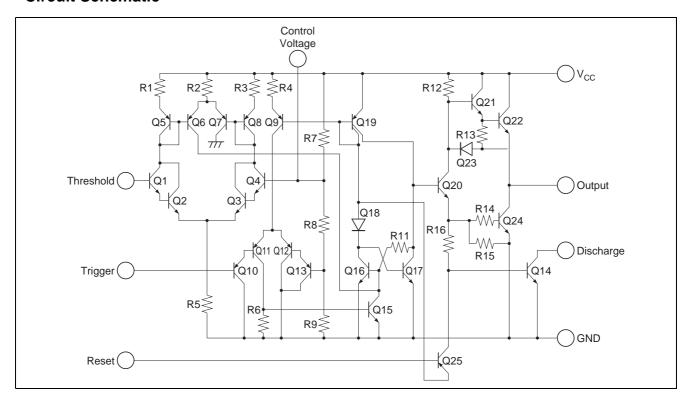
Pin Arrangement



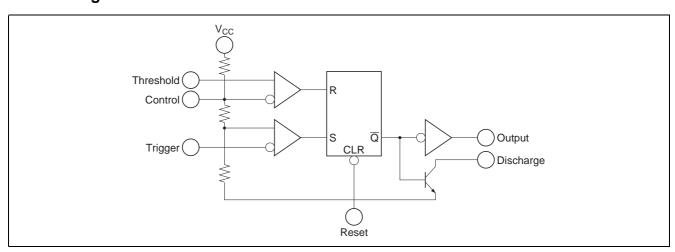
Pin Description

Pin No.	Function		
1	Ground pin		
2	Trigger pin		
3	Output pin		
4	Reset pin		
5	Control voltage pin		
6	Threshold pin		
7	Discharge pin		
8	V _{CC} pin		

Circuit Schematic



Block Diagram



Absolute Maximum Ratings

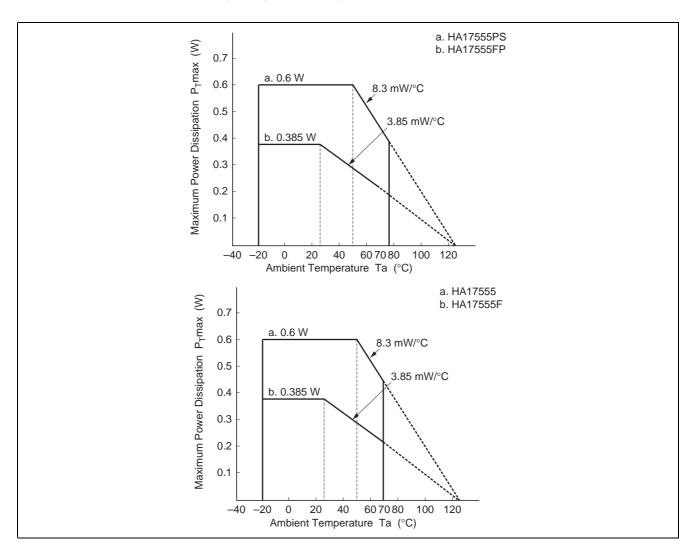
 $(Ta = 25^{\circ}C)$

Item	Symbol	HA17555PS/FP	HA17555/F	Unit
Supply voltage	V _{CC}	18	18	V
Discharge current	I _T	200	200	mA
Output source current	Isource	200	200	mA
Output sink current	Isink	200	200	mA
Power dissipation* ¹	P _T	600/385	600/385	mW
Operating temperature	Topr	–20 to +75	-20 to +70	°C
Storage temperature	Tstg	-55 to +125	-55 to +125	°C

Note: 1. For the HA17555/PS,

This value applies up to Ta = 50° C; at temperatures above this, $8.3 \text{mW}/^{\circ}$ C derating should be applied. For the HA17555F/FP,

This value applies up to Ta = 25°C; at temperatures above this, 3.85mW/°C derating should be applied. See notes on SOP Package Usage in Reliability section.



Electrical Characteristics

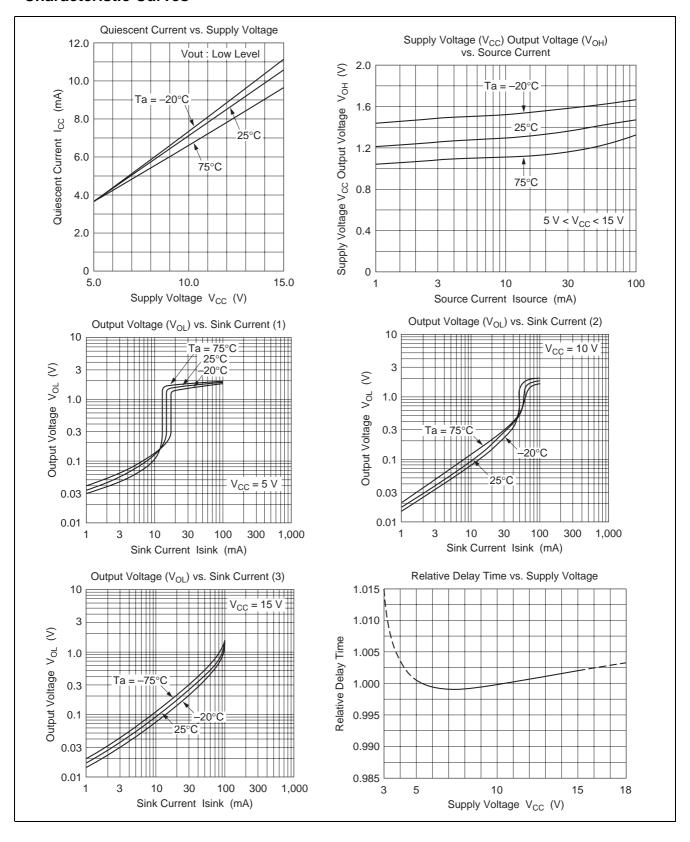
 $(V_{CC} = 5 \text{ to } 15 \text{ V}, Ta = 25^{\circ}C)$

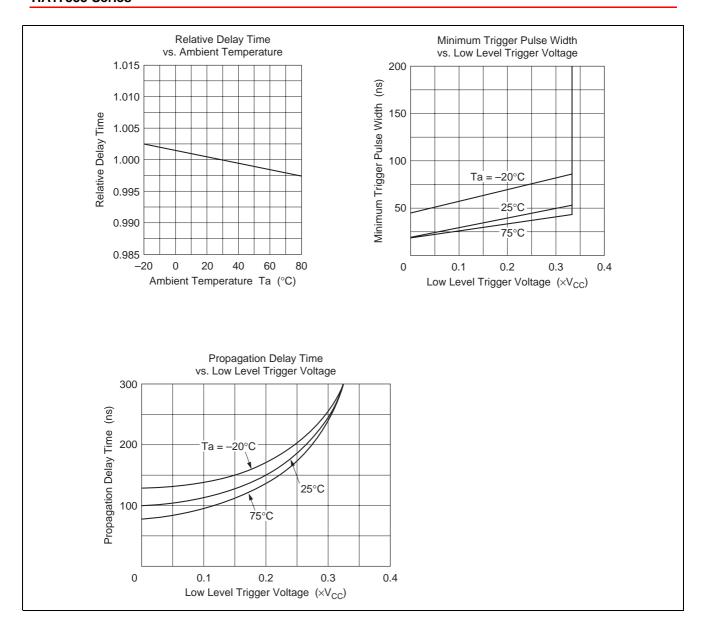
Item	Symbol	Min	Тур	Max	Unit	Test conditions
Supply voltage*1	V _{CC}	4.5	_	16.0	V	
Supply current	Icc	_	3.0	6.0	mA	V _{CC} = 5 V, R _L = ∞
	Icc	_	10	15	mA	V _{CC} = 15 V, R _L = ∞
Timing error*2	Et	_	1.0	_	%	
(Inherent error)						
Timing error* ²	Et	_	50	_	ppm/°C	Ta = -20 to + 75°C
(Ta dependency)						
Timing error* ²	Et	_	0.01	_	%/V	V _{CC} = 5 to 15 V
(Voltage dependency)						
Threshold voltage	Vth	_	2/3	_	$V \times V_{CC}$	
Trigger voltage	V_T	_	5.0	_	V	V _{CC} = 15 V
	V_T	-	1.67	_	V	$V_{CC} = 5 V$
Trigger current	IT	_	0.5	_	μA	
Reset voltage	V_R	0.2	0.5	1.0	V	
Reset current	I_R		0.1	_	mA	
Threshold current	Ith* ³	_	0.1	0.25	μA	
Control voltage	V_{CL}	9	10	11	V	V _{CC} = 15 V
	V_{CL}	2.6	3.33	4.0	V	V _{CC} = 5 V
Output voltage	V_{OL}		0.1	0.25	V	V _{CC} = 15 V, Isink = 10 mA
		_	0.4	0.75	V	V _{CC} = 15 V, Isink = 50 mA
			2.0	2.5	V	V _{CC} = 15 V, Isink = 100 mA
		_	2.5	_	V	V _{CC} = 15 V, Isink = 200 mA
		_	0.25	0.35	V	V _{CC} = 5 V, Isink = 5 mA
Output voltage	V _{OH}	_	12.5	_	V	V _{CC} = 15 V, Isource = 200 mA
		12.75	13.3	_	V	V _{CC} = 15 V, Isource = 100 mA
		2.75	3.3	_	V	V _{CC} = 5 V, Isource = 100 mA
Output rise time	t _r	_	100	_	ns	No loading
Output fall time	t _f	_	100	_	ns	No loading
Oscillation pulse width*4	tw	10.0	_	_	ns	

Notes: 1. When output is low (When it is high, I_{CC} is lower by 1 mA typically.)

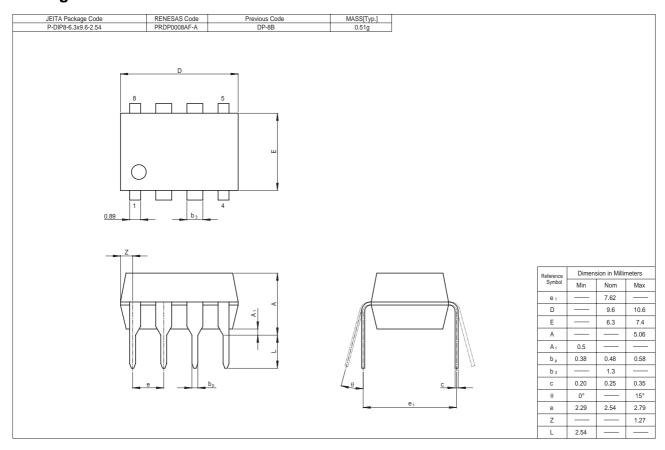
- 2. R_A , R_B = 1 k to 100 k Ω , C = 0.1 μ F, V_{CC} = 5 V or 15 V.
- 3. $(R_A + R_B)$ at V_{CC} = 15 V is determined by the value of lth. It is 20 M Ω Max.
- 4. Output pulse width at mono multi circuit. Output high level pulse width at astable circuit.

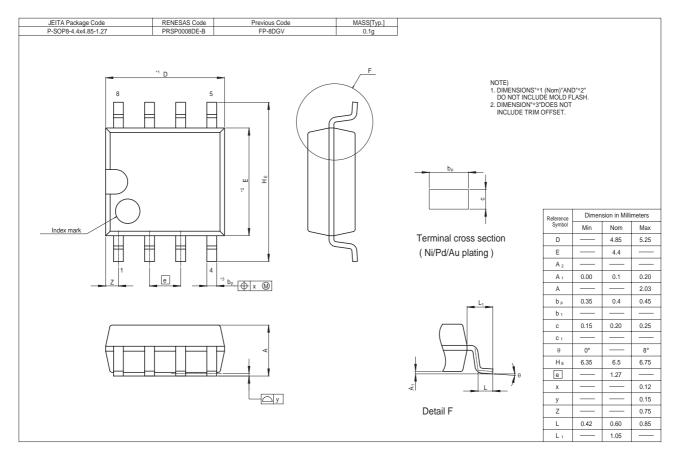
Characteristic Curves





Package Dimensions





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